MOUNT POCONO BRIDGE
(State Route 4007 Bridge)
Fairview Avenue, spanning the Delaware,
Lackawanna & Western Railroad
Mount Pocono
Monroe County
Pennsylvania

HAER No. PA-431

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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HISTORIC AMERICAN ENGINEERING RECORD

MOUNT POCONO BRIDGE
(State Route 4007 Bridge) HAER No. PA-431

Location: State Route 4007 spanning the Delaware, Lackawanna & Western Railroad, Mount Pocono, Monroe County, Pennsylvania

UTM: 18.469100.4551280
Quad: Mt. Pocono, Pennsylvania

Date of Construction: 1922

Present Owner: Lackawanna County Railroad Authority
701 Wyoming Avenue
Scranton, Pennsylvania 18509

Present Use: Presently closed to vehicular and pedestrian traffic.

Significance: The Mount Pocono Bridge is important at a state and local level as one of three late nineteenth-early twentieth century metal truss bridges standing in Monroe County. The dwindling number of metal truss bridges in Monroe County, coupled with the small number of Warren truss bridges in Pennsylvania, emphasizes the architectural significance of the Route 4007 Bridge in Mount Pocono.

Project Information: This documentation was undertaken in June 1996 in accordance with the Memorandum of Agreement by the Pennsylvania Department of Transportation District 5-0 as a mitigative measure prior to demolition of the bridge.

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The State Route 4007 (Fairview Avenue) Bridge over the Delaware, Lackawanna & Western Railroad is located along State Route 4007 in Mount Pocono Borough, Monroe County, Pennsylvania. The two-lane bridge is owned by the Lackawanna County Railroad Authority, and is presently closed to vehicular and pedestrian traffic. The bridge is a triple span steel pony truss bridge which runs north-south over an east-west section of the former Delaware, Lackawanna and Western Railroad. This portion of the railroad is now owned by the Lackawanna County Railroad Authority, and is used by the Steamtown National Historic Site for steam railroad excursions. The bridge has been determined a contributing element of the Delaware, Lackawanna and Western Railroad which was determined eligible for the National Register of Historic Places by the Pennsylvania Historical and Museum Commission (Ramsey 1996).

This bridge is a metal truss bridge. It exemplifies the road building boom which occurred in the first decades of the twentieth century in Pennsylvania. The ease of construction of metal truss bridges made them the most common bridge type built in the United States from the mid-nineteenth to the early twentieth century (Pennsylvania Historical & Museum Commission 1986:126). This bridge type was developed in response to the growth of America's railroad network. Its overwhelming popularity throughout the country is attributed to the fact that it was adaptable to a wide variety of sites, and its prefabricated components were inexpensive to manufacture and ship (Spero 1991:42). In America, the simplest truss was the Warren. Named for a British engineer, Captain James Warren, it was widely used in America in the early twentieth century. Captain Warren patented it (with Theobald Monzant) in 1848 (Jackson 1988:27). Thereafter it was adopted by American bridge designers (Jackson & Comp 1977:95). Trusses also became common in other types of construction work. One of the most popular steel trusses used for floor construction and as purlins for roof construction is the Warren truss which has top and bottom cords of wide tee-shaped members and a plain continuous web member (Graham & Emory 1951:995). The Warren truss is distinguished by its diagonal members designed to carry both tensile and compressive forces. These members can be supplemented by vertical members to create what are known as Warren trusses with verticals (Jackson & Comp 1977:95). The Route 4007 bridge is comprised solely of diagonal members, with these members in tension.

The popularity of the Warren truss in the early twentieth century coincided with the development of new technologies used to connect truss members (Jackson 1988:27). The Warren truss is still in use today, but has generally been surpassed by a purely American Type, the Pratt truss, invented by Caleb and Thomas Pratt in 1844 (Gies 1966:22).

The majority of late nineteenth century truss bridges were built for railroad companies because loading and traffic over road bridges during this period was still light in contrast to the railroad's heavy freight loading requirements. As the popularity of the automobile increased in the early twentieth century, the most frequently traveled dusty rutted roads were improved and eventually widened. In this progression from cart road to highway, few improvements were made in bridges until the Federal Highway Act (1921) imposed national standards on highway design

and construction. It was during this period that many roads were widened and the first two-lane road bridges appear.

The S.R. 4007 bridge is an artifact of that period. Despite its deteriorating state, this bridge is a good example of a steel pony truss bridge built in the form of a Double Intersection Warren truss. Despite the commonality of the Warren truss form for this type of road bridge, a 1982 survey of bridges undertaken by the Pennsylvania Historical and Museum Commission and the Pennsylvania Department of Transportation only identified "a few" in Pennsylvania (PHMC 1986:120). Based on this data, the Route 4007 bridge in Mount Pocono represents a rare bridge form in Pennsylvania.

The bridge was built in 1922 in response to the burgeoning Pocono Mountain resort community. The bridge carried road traffic over the now defunct Delaware, Lackawanna and Western Railroad lines. The portion of the railroad over which the bridge passes was originally part of the Delaware & Cobb's Gap Railroad. During the 1850s, these companies were in the process of constructing a railroad line that would extend from Scranton eastward across the Pocono Mountains to the Delaware River (Saylor 1964:59). When the Delaware and Cobb's Gap lines merged with the Lackawanna and Western in 1853, completion of this line proceeded without delay. By 1856, the DL&W offered service between Scranton and Portland on the Delaware River (Saylor 1964:59). The late construction date of the bridge, seventy years after the completion of this branch of the railroad line, may indicate that an earlier bridge predated the erection of the existing metal truss bridge. A date of 1912 is inscribed in a recessed rectangle on the north concrete abutment and may relate to such an earlier structure. Nevertheless, by the 1922 construction date of the present structure, the Delaware, Lackawanna & Western Railroad was a bustling railroad responsible for the movement of people and goods through Pennsylvania to upstate New York and northern New Jersey (Saylor 1904:59).

The opening of the Delaware, Lackawanna and Western Railroad caused the area to grow. Although people had settled in the Pocono Mountain region by the mid-eighteenth century, the major portion of the area through which the Delaware Lackawanna and Western Railroad passed had remained a mountainous wilderness until the railroad gave rise to rapid settlement. The railroad line supported the area's economic base whether it was lumbering and tanning, manufacturing, ice, agriculture or tourism. Only motorized vehicles would end that domination.

By the 1840s, lumbermen and tanners had begun to utilize the area that would become the railroad route. The completion of the railroad line in 1856 provided a mixed blessing for the region. Settlements along the line appeared or increased in size because of the combination of rail transportation and extensive forests. The railroad stimulated the lumber and tanning industry, and various industries using wood were opened. The Forks, as Mount Pocono was originally named, was located along the Delaware Lackawanna and Western railroad line, and, like its neighboring communities, it had its share of lumbering and wood related industry. However, the exploitation and destruction of the woodlands occurred at such a rapid rate that most of the

region became denuded. Scrubby growth such as rhododendron, whortleberry, and huckleberry replaced the trees. Agriculture in this mountainous area was limited by the thin rocky soil, but even limited farming added to the depletion of the forests. The decimation of the woodlands reached its peak in the 1870s. Without forests to dissipate the flow of moisture, rainfall swelled streams, runoff was rapid, and streams became almost dry between storms. Consequently, when the area's woodland and water resources were exhausted, many sawmill and tannery owners left the area to seek their fortunes elsewhere.

The region's communities adapted in a variety of ways to the demise of the lumber and tanning industry. Coal mining, ice production, railroad yards and silk production, as well as shipping rhododendron and huckleberries by rail to New Jersey and New York, were among the economic responses to the depletion of the woodlands (Clemensen 1991: 61-67).

By 1900 the Delaware, Lackawanna and Western president, William Truesdale, began to actively support the development of business along the railroad route, but outside of Scranton and East Stroudsburg few industries were interested in the smaller villages. Another service provided by the railroad involved the "accommodation" train. Around 1900, an early version of urban flight, resulted in many families seeking escape from Scranton's congestion by moving to the smaller villages along the railroad route. This migration was augmented by the transfer of many railroad office employees from New York City to Scranton in 1908. Many of these people also chose to settle in the smaller towns along the Scranton to Slateford Junction line. As a result, the Delaware Lackawanna and Western Railroad began to operate a commuter train which stopped at each station. But over time, it was the vacation business that rejuvenated the economy of the region (Clemensen 1991: 68-70).

As early as the 1820s, vacationers were arriving in this beautiful mountainous region by horse and stagecoach. Vacationers came to the Pocono Mountain region to hunt, fish, and rest. The development of tourism increased after the Delaware, Lackawanna and Western completed its line through the area. Despite the loss of the region's extensive forests, many vacation hotels were in operation by the mid-1870s. The Pocono Mountain House near Mount Pocono was built at that time. The rising interest in vacation sites prompted the Delaware, Lackawanna and Western Railroad to issue advertising booklets in 1893. The rail service to the area lasted until about 1937 when the automobile superseded it (Clemensen 1991: 70-72).

The S.R.4007 bridge was designed and built to carry motor vehicles. The structure is a two lane, three span steel pony truss bridge with timber deck. The overall bridge measures approximately 42 meters (138 feet) in length by about 7 meters (25 feet) in width, with each span measuring 12.5 meters (41 feet 4 inches), 18 meters (59 feet 1 inch) and 11.5 meters (37 feet 6 inches), respectively. The bridge runs north and south over an east-west section of the former Delaware, Lackawanna and Western Railroad. The spans are supported by two piers that flank the railroad north and south of the track. Each pier consists of two steel columns with each column set upon a concrete pedestal. A date block inscribed with 1922 is located on the northeast

and the southwest pedestals. The piers are strengthened by lattice bracing. This bracing occurs in double units, spanning the width of the bridge. Each pier is bolted to the lower chord of the bridge by diagonal members. Other features of the substructure include the abutments. The abutments are constructed of fieldstone covered in concrete. Short steel beams are evident between the top of the abutment and the bottom of the road deck. Timber shoring members have also been placed beneath the road deck at the northeast, southeast, and southwest corners to aid the load bearing capacity of the bridge. The overall opening beneath the bridge is just about 36.5 meters (120 feet).

The superstructure of the bridge retains its original features. The bridge deck consists of diagonally placed weathered ten inch wide timber planks. Timber curbs formed from railroad ties run the entire length of the bridge, resulting in a curb-to-curb road width of 6.2 meters (20 feet 4 inches). Longitudinal timber stringers run the entire length of the bridge. The floorbeams, consisting of timber and steel I-beams, are set transverse to the direction of traffic to transmit deck loads to the trusses. The truss form, which is partially damaged, consists of lattice bracing. The bracing configuration is simple: two thin rods intersecting a thicker member to form an X-shaped panel. This bracing bonds the top chord of the bridge to the lower chord. At alternate panels, the bracing is reinforced by inclined metal rods which run from the top chord to steel I-beams which are situated directly above the lower chord. The steel I-beams jut outward to accommodate the rods. Vertical end posts mark the ends of the bridge rails.

Between 1922 and the mid-1980s, the Route 4007 bridge remained in use. During this sixty year period, the dominance of the railroad was overshadowed by use of automobiles, trucks, and airplanes to transport people and goods. In order to remain competitive with changing technologies, the Delaware, Lackawanna and Western Railroad merged with the Erie Railroad Company, the principal owner of railroad lines branching north, east, and west from western Pennsylvania (Saylor 1964:57). The newly formed Erie-Lackawanna Railroad was not successful and filed for bankruptcy in 1972 (NPS 1987:59). At that time, its assets were taken over by Conrail. By the mid-1980s, however, Conrail ceded control of the abandoned tracks that pass under State Route 4007 to the Lackawanna County Railroad Authority. During this same period, the PennDOT District 5-0 office closed the metal truss bridge to vehicular and pedestrian traffic, citing unsafe conditions (PennDOT 1988).

The Lackawanna County Railroad Authority was created by Lackawanna County under the Municipal Authority Act to purchased the former Delaware, Lackawanna and Western Railroad from Conrail. In 1986, the non-profit Steamtown Foundation was formed to create the Steamtown National Historic Site in Scranton, Pennsylvania (NPS 1987:1). This national historic site functions to further public understanding and appreciation of the development of the steam locomotive in the region (NPS 198:1). In addition to the railroad museum, Steamtown also operates an excursion line between Scranton and Moscow on the former Delaware, Lackawanna and Western Railroad tracks. Steamtown runs excursions to Monroe County terminating northwest of the S.R. 4007 bridge in Mount Pocono. Occasionally Steamtown extends its

excursion through the Pocono Mountains, passing under the metal pony truss bridge located on Route 4007 in Mount Pocono, and terminating at the Delaware Water Gap.

The confluence of early twentieth century transportation resources is symbolized by the Route 4007 truss bridge over the Delaware, Lackawanna and Western Railroad. The expanding road network and railway system contributed to the economic growth for both Monroe County and the Commonwealth of Pennsylvania. The Route 4007 bridge is a contributing element of the Delaware, Lackawanna and Western Railroad, portions of this railroad have been surveyed and are determined eligible for listing on the National Register of Historic Places. The bridge is recognized under National Register Criterion A, Historical Significance, because it exemplifies the evolution of road networks in the Pocono Mountains region of Monroe County. At the time of its construction in 1922, the automobile was just becoming a prevalent means of transportation for Americans and the newly created Federal Highway Administration (Federal Highway Act of 1921) was beginning to respond to the needs of the automobile traveler. Users of the Monroe County road system benefited from a technologically advanced solution to crossing railroad tracks in Mount Pocono. Eventually the popularity and economic efficiency of automobiles challenged the superiority of the railroad. The Route 4007 bridge survives as an excellent example of this turning point in Pennsylvania's transportation history.

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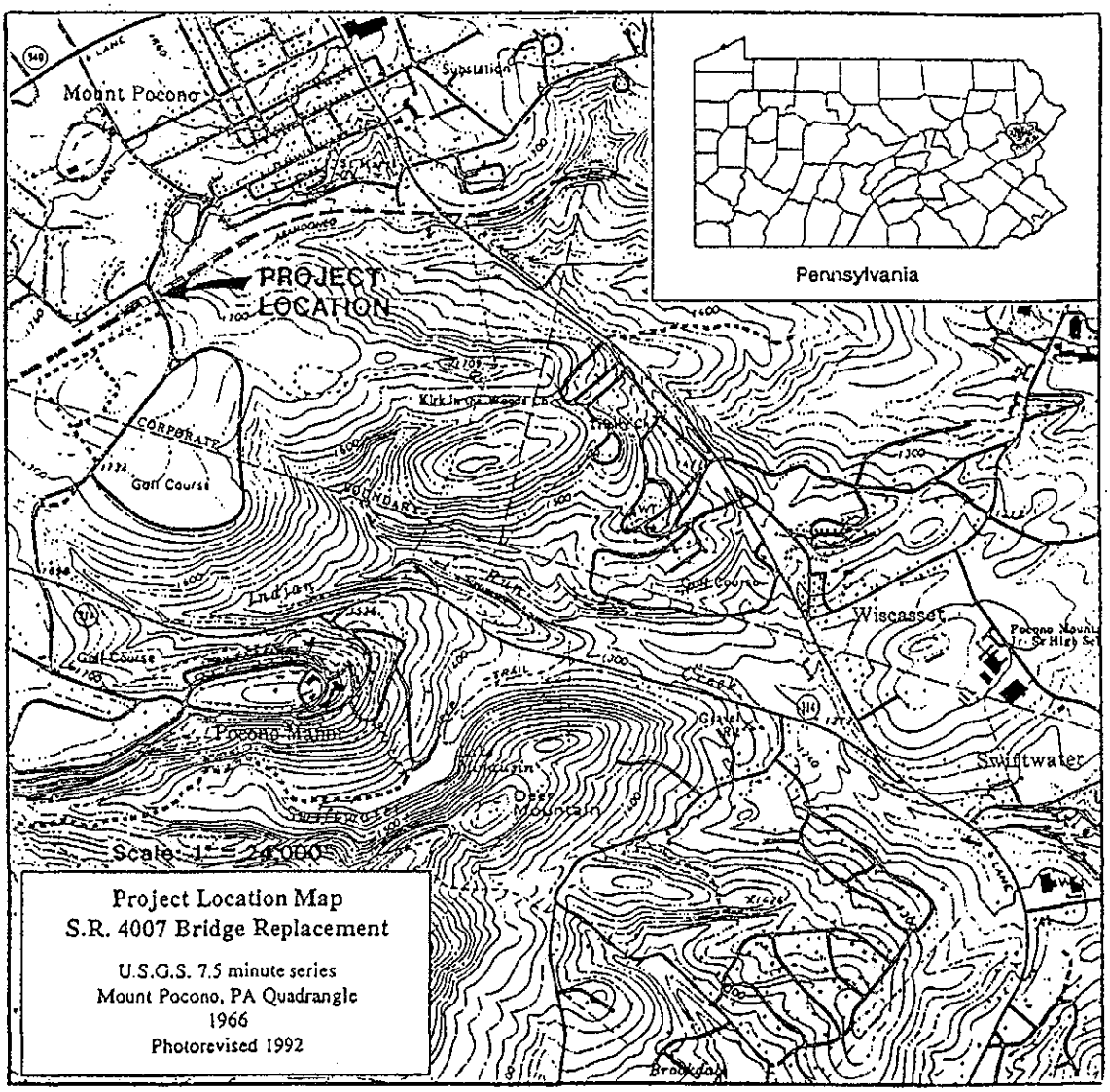
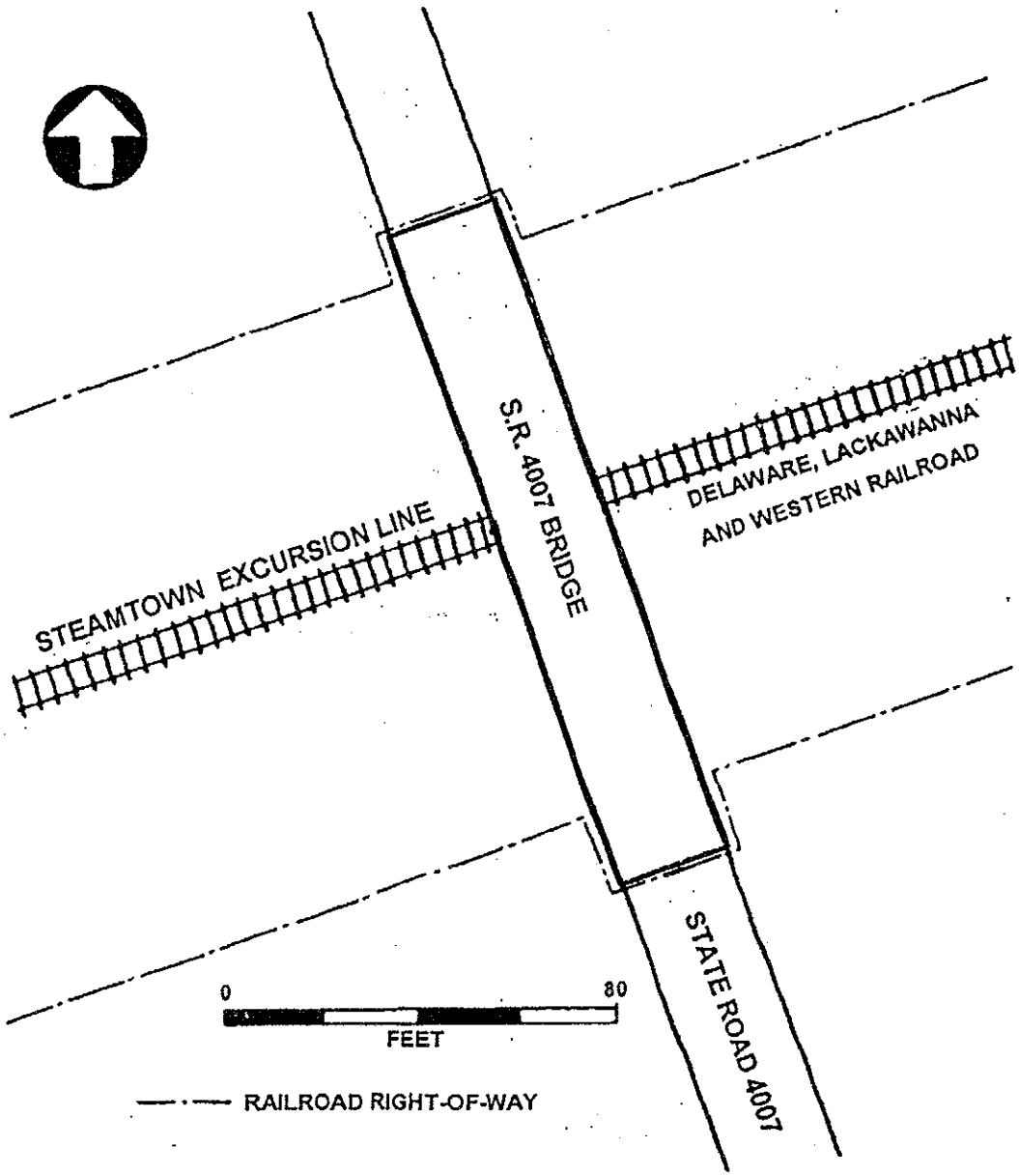
LOCATION MAP



Sketch Plan



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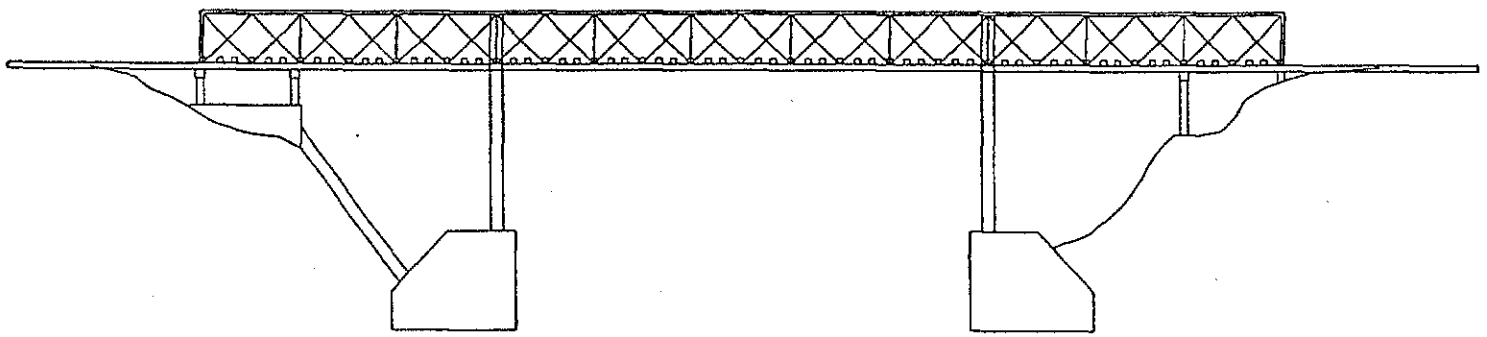

Sketch Elevation

Not to Scale

MOUNT POCONO BRIDGE
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